

<b>Public Comments on Draft NUREG-1757, Supplement 1 *</b>		
<b>No.</b>	<b>Name/Affiliation</b>	<b>ADAMS #</b>
1	A. Scroggs, Washington Department of Health	ML053630095
2	F. Gottdiener, Citizens Environmental Coalition	ML053630098
3	D. D'Arrigo and P. Gunter, Nuclear Information and Resource Service; J. Johnsrud, Sierra Club	ML053630099
4	S. Tarlton, Colorado Department of Public Health and the Environment	ML060040110
5	O. Paulson, Kennecott Uranium Co.	ML060040118
6	J. Lipoti, New Jersey Department of Environmental Protection	ML060040122
7	J. Deckler, Association of State and Territorial Solid Waste Management Officials (ASTSWMO)	ML060040128
8	R. Hill, Save the Valley, Inc.	ML060040142
9	G. van Noordennen, Connecticut Yankee Atomic Power Company	ML060040144
10	R. Vaughan, Coalition on West Valley Nuclear Wastes	ML060050273
11	B. Youngberg, New York State Department of Environmental Conservation	ML060050277
12	J. Lieberman, Regulatory and Nuclear Safety Consultant	ML060110183
* This document does <i>not</i> contain cover e-mails or e-mail properties. For such details, see the Official Agency Records copies in ADAMS.		

From: "Scroggs, Arden (DOH)" <Arden.Scroggs@DOH.WA.GOV>  
To: "dws2@nrc.gov" <dws2@nrc.gov>  
Date: 10/28/05 6:56PM  
Subject: Comment on STP-05-074 from Washington State

Duane W. Schmidt,

These comments are provided for "Decommissioning Guidance Updates To Implement The License Termination Rule Analysis" (STP-05-074). We would like to have volumetric release limits, or such guidance, established so we are more easily able to determine soil and solid releases. The current "few millirem per year" criteria is not very useful. Most release limits are identified volumetrically. Thanks for the opportunity to comment.

Arden C. Scroggs, Supervisor  
Radioactive Materials Section  
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Public Health - Always working for a safer and healthier Washington

CC: "Frazee, Terry (DOH)" <Terry.Frazee@DOH.WA.GOV>, "Grumbles, Anine (DOH)" <Anine.Grumbles@DOH.WA.GOV>

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SISP Review Complete

Template = ADM-013

E-RIDS = ADM-03  
Add = D. Schmidt (DWS2)  
C. Banovac (KLB)

**From:** Felix Gottdiener <felix@cectoxic.org>  
**To:** <DWS2@nrc.gov>  
**Date:** 12/19/05 5:09PM  
**Subject:** Extension of Comment period for nureg 1757 SUPPLEMENT 1

Dear Duane Schmidt and Kristina Banovac,

Hi. My name is Felix Gottdiener and I am an Environmental Associate for Citizens' Environmental Coalition, a statewide environmental group in New York State. First off, I appreciate your release of the draft updates to implement the License Termination Rule Analysis. My group is currently engaged with other local and national environmental groups to ensure a comprehensive cleanup at the West Valley Nuclear Site in West Valley, NY. As you know, the License Termination Rule will set the standards for cleanup at this site. The nuclear material on site has the potential to affect the lives of the Western New York community and the entire Great Lakes watershed for hundreds of years. I am writing to request that you extend the comment period for another month, until the end of January 2006. Many of us in the environmental community will be taking time off within the next two weeks to be with our families and it is not the most convenient time to review a 300-page draft change to the LTR. Extra time is essential to confer with the other groups working on the site and ensure that we can amass input on these regulations. It is vital that the NRC receive the input of community groups on this issue, since we are the ones who will be feeling the true effects of the cleanup. Thank you for your consideration.

Sincerely,

Felix Gottdiener  
CEC Environmental Associate  
WNY Office:  
543 Franklin St, Suite 2  
Buffalo, NY 14202  
Phone: 716-885-6848

**CC:** <KLB@nrc.gov>, <dianed@nirs.org>

9/29/05

70FR 56940

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2005 DEC 23 PM 12:46

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Template = ADM-013

F-RIDS = ADM-03

Cell = D. Schmidt (DWS2)

K. Banovac (KLB)

9/29/05  
70 FR 56940  
(3)

**From:** "Diane D'Arrigo" <dianed@nirs.org>  
**To:** <KLB@nrc.gov>, <DWS2@nrc.gov>  
**Date:** 12/22/05 7:49PM  
**Subject:** Extension Request for comments on NUREG 1757 Supp 1

Duane Schmidt

Kristina Banovac

UN Nuclear Regulatory Commission  
1757 Supplement 1 extension request

RE: NUREG

December 22, 2005

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2005 DEC 23 PM 1:02

RULES AND DIRECTIVES  
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LSN/PC

Dear Drs Schmidt and Banovac:

This is a request on behalf of Nuclear Information and Resource Service and the Sierra Club for an extension on the comment period for NUREG 1757 Supp1 implementation guidance for the NRC License Termination Rule.

Our organizations are involved at locations which would implement this guidance and would like an extra 60 days to complete our reviews and provide comments.

As you are no doubt aware, nonprofit organizations must raise resources to provide technical reviews and require time to contact, consult and incorporate the practical experiences from those in the vicinity of sites that have, are or will undergo license terminations under 10 CFR 20 Subpart E. We wish the extension of time to give input from the perspectives of our groups and contacts in communities affected by this guidance.

We had every intent to meet the December 30, 2005 deadline but now realize will not be possible in more than a very cursory way.

We support the request of Felix Gottdiener of Citizens Environmental Coalition but request 60 days.

We hope you will please consider and decide favorably on this request.

SISP Review Complete  
Template = ADM-013

E-RIDS = ADM-03  
Add = D. Schmidt (DWS2)  
K. Banovac (KLB)

Sincerely,

Diane D'Arrigo, Paul Gunter

Nuclear Information and Resource Service

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Dr. Judith Johnsrud

Sierra Club

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**CC:** "Judith Johnsrud" <johnsrud@uplink.net>, "Paul Gunter" <pgunter@nirs.org>

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Colorado Department  
of Public Health  
and Environment

December 28, 2005

Chief, Rules Review and Directives Branch  
U.S. Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, DC 20555-0001

## Comments on NUREG 1757, Supplement 1, draft

Dear Sir:

The Colorado Department of Public Health and Environment Radiation Management Unit appreciates the opportunity to comment on the proposed changes to NUREG 1757. We have included both general comments and specific comments below:

### General Comments

1. While many of these proposals individually appear to be feasible, taken together, there may be relief for licensees at the cost of a reduction of protection of the environment. If one were to combine the practices of scenario relief based on short term land use, invoke intentional mixing of soil, and then reburial of that material on site, the original source term that would otherwise be required to be remediated and sent offsite will still be present, but without assurance that groundwater or biota are adequately protected. The "diluted" values from mixing would possibly be used as inputs to a model that doesn't address sufficient pathways due to scenario picking, resulting in source terms being left on the site, possibly no longer under a license.

It appears that some of these proposals actually run counter to the lessons-learned outlined in SECY-03-069, particularly with trying to avoid legacy sites. Allowing the resurgence of on-site burial of radioactive waste and intentional mixing of waste and burying it onsite with the possibility of having to readdress the materials at closure is not consistent with avoiding legacy sites.

It is not clear that on-site burial and intentional mixing are consistent with State requirements, or those of the other Federal agencies. This would not be consistent with the intent of harmonization of standards so long sought by the agencies through the ISCORS.

While guidance isn't mandatory, incorporating these practices into guidance is defacto approval and may lead to unintended consequences such as additional legacy sites. This reviewer believes the LTC license, intentional mixing, and onsite burial of radioactive wastes should not be included in the final document, and should be subject to rulemaking.

2. On-site disposal of radioactive wastes should not be routinely allowed. It may lead to a proliferation of sites, and may do little to mitigate the number of future legacy sites. On-site disposal of radioactive waste is not approved in Colorado, based on past experiences that have not borne out well over time (i.e., Colorado State University, Shattuck Chemical Superfund Site). This is a significant action, and should be considered through the rulemaking process rather than guidance.

A review of the status of decommissioning sites in NUREG-1814 shows that a majority of the non-reactor sites are contaminated with long-lived isotopes from legacy operations, with little or no surety, some of them as a result of on-site burials. That legacy alone should be enough to not allow on site burials and accumulation of wastes on site for ongoing operations.

It may also be inferred from the NUREG-1814 list of sites that practices proposed in NUREG-1757 are driven by a lack of funding over anything else, since the affected sites appear to not have a responsible party or available funds for cleanup or surety. It may be better in the long run to go for an appropriation to clean these sites up properly (or turn them over to EPA) rather than adopt practices that are atypical, such as onsite burial and intentional mixing.

3. Intentional mixing of soil to meet waste acceptance criteria at an off-site facility or to meet LTR criteria should be subject to NEPA review, may not be consistent with State requirements, or those of other agencies, and should not be encouraged. Intentional mixing of waste is counter to decades of environmental policy in this country, and should have a more thorough vetting, particularly with other Agencies. This is a significant action, and should be considered through the rulemaking process rather than guidance.

It appears that the concept of intentional mixing includes the following logic: the generator liable for the pollution at the site can downblend it with clean soil, put it back in the ground, and terminate the license, possibly absolving themselves of future liability. Perhaps this should be evaluated from the taxpayer's standpoint instead of the generator's.

4. Since the LTC license is not terminated in the usual sense, would this require NEPA review or a rulemaking instead of just incorporating it in guidance? This would appear to be a significant change, and should be reflected in the regulations, rather than guidance.
5. Section 17.7.1 discusses LA/RC for NRC use, however, many states now have effective environmental covenant mechanisms available. These can be more effective than the NRC LA/RC and should be mentioned as allowable, at the state's discretion.
6. Section 17.7.2.2.1 presents a very valuable discussion of considerations for evaluating long-term care needs.

7. Section 3.5. It appears that this draft guidance promotes the same concepts for design of final covers that have been advocated in the past. Newer information based on relatively recent research and "lessons learned" from completed sites do not appear to be included in this draft guidance. It would be advantageous for this guidance to critically evaluate and include relevant design and construction information from landfills under other regulatory programs, such as CERCLA, RCRA C (hazardous waste) and RCRA D (solid waste).
8. Section 4, Appendices D, E, I, Sections 2.1 and 2.8. Using the MARSSIM and MARLAP guidance documents to help generate data is appropriate. The necessary assessment and characterization goal-setting processes that involve stakeholders and public acceptance are missing. One may implement the guidance perfectly and not achieve closure because of political and public relations missteps.
9. Section 5 and Appendices I and M describe application of a hundred year rule (and the peak dose during that period), which is insufficient for most of the applications of the Decommissioning Rule in Colorado. In nearly every instance where such a rule could be applied in Colorado over the next 10 or 20 years, we will need to consider 1600-year radium-226 ( $^{226}\text{Ra}$ ) or 4½ billion-year uranium-238 ( $^{238}\text{U}$ ) as radioactive contaminants of concern. Consideration of multiple time frames, radionuclide groups, and scenarios would benefit from guidance that states that there are site conditions for which "Reasonably Foreseeable land uses" cannot be predicted. Those site conditions would include situations where the contaminants are very long-lived relative to the rate of change in land-use patterns, such as  $^{226}\text{Ra}$  near an urban or even an intensively-farmed agricultural setting.
10. If land use planning is only good for 100 years, then a prudent and precautionary approach should be taken for any LTC or IC approach. It is unacceptable to use 100 years as a risk assessment planning tool for wastes that are long-lived.

### Specific Comments

- p. II-8 describes lower hazard level as above 25 mrem/yr, but less than 100 mrem/yr; and higher hazard level as above 100 mrem/yr, but below 500 mrem/yr. It should also clarify that decommissioning is not complete unless the site hazard has been reduced to a level below 500 mrem/yr in the event that any institutional or engineered controls fail.
- p. II-17 Section A discusses the enforceability mechanisms of institutional controls. Due to the remoteness of the NRC offices from most licensed sites, it may be securable to delegate in some way the enforceability responsibilities to Agreement states, who would likely have a greater local presence.
- p. II-39 While it is certainly appropriate for a licensee to create a public involvement process as decommissioning approaches, it may also be beneficial to have created such a process at the beginning or during the facility life. An established public group is educated on the issues at the facility and is more likely to understand the difficult issues to be addressed in closure.
- p. II-48 Item 5 describes the requirements for sites where uncontrolled access could result in public exposures greater than 500 mrem/yr; however, it is not clear that these criteria are materially

different than those required for 100 mrem/yr. Furthermore, decommissioning is not complete unless the site hazard has been reduced to a level below 500 mrem/yr in the event that any institutional or engineered controls fail, and such sites would not be addressed in this guidance.

Section 3.5 The “Engineered Barrier” concept discussed in this draft guidance appears to continually promote and support similar concepts that were used about 20 years ago for generic design of the UMTRA disposal cells. It appears that site-specific, as well as “lessons learned” information developed over the last 20 years or so with respect to actual performance of UMTRA disposal cell covers has not been applied to this proposed updated guidance. In addition, other significant, relatively recent information obtained on landfill cover design through the Environmental Protection Agency’s (EPA) Alternative Cover Assessment Program (ACAP), the Department of Energy’s (DOE) Alternative Landfill Cover Demonstration (ALCD), or recent alternative landfill cover guidance published by the Interstate Technology & Regulatory Council (ITRC), have apparently not been considered in preparation of this document.

One example of an optimistic view with respect to UMTRA cover performance relates to the discussion concerning the process to be used for an engineered barrier analysis. The statement is made that for covers designed in accordance with uranium mill tailings guidance NUREG-1623, no degradation of the cover is assumed. Therefore, active maintenance is not relied upon for assurance that the design objectives are achieved. It is our understanding that this is not really the case at many UMTRA disposal cells. Problems have developed at the disposal cells that were not anticipated during design, such as deep-rooted vegetation encroaching the cell, thereby requiring active maintenance.

Conversely, features that were rejected for UMTRA cell cover design by the NRC, such as incorporating geosynthetic materials into a low permeable barrier cover system, continues to be discouraged. It has been conclusively demonstrated by rigorous academic research as well as side-by-side field tests, that the use of a composite cover (compacted clay liner [CCL] or geosynthetic clay liner [GCL] and geomembrane together) is a more effective barrier system than using a CCL, GCL, or geomembrane individually. However, this document promotes the outdated UMTRA design philosophy, claiming that a composite cover performance is only acceptable for the timeframes of available field studies (10+ years). Noted experts in the geosynthetic field, such as Robert M. Koerner, Director of the Geosynthetics Research Institute, argues for extremely long service lifetimes, provided the material is installed properly. Koerner and others suggest that 250 to 700 years is not unreasonable for geomembrane service life.

From an overall concept, it is our opinion that an even better cover system for long-term considerations, particularly in arid or semi-arid climates, is an evapotranspiration (ET) cover. This draft guidance, however, does not discuss an ET cap as a potential “engineered barrier”. In fact, the references provided in Table 3.1 that relate to a “soil cover system” are outdated (written in 1991) and obviously do not include the most recent protocol for design and construction of ET cover systems. In addition, any reference to constructing CCLs from the 1991 guidance would also be outdated. The most currently accepted method of placing CCLs is through the use of an Acceptable Zone based on the “Lines of Optimums” concept. The Lines of Optimums concept was developed after 1991. It is curious that this draft guidance dismisses geosynthetics as an appropriate cover system due to potential long-term concerns, yet the ET

cover, which is the most time-durable cover system because it emulates the natural environment better than the other cover concepts, is not discussed in detail.

Another theme promoted throughout this guidance is the conclusion that actual field procedures, no matter how much quality effort is provided, cannot overcome theoretical concerns that have been determined in the "office". For example, it is stated that one cause of degradation of geomembranes used in composite soil caps is due to long-term exposure to UV light. This concern appears to be overstated. While this concern is theoretically correct, construction specifications for utilizing geomembranes should specify a maximum UV light exposure time period, as recommended by the geomembrane vendor, thus rendering this issue moot. An adequate Quality Control/Quality Assurance (QC/QA) Plan would also assure that the maximum time exposure to UV light required by the specifications is adhered to.

**Removal of Material After License Termination:** The dose-based approach on a site-by-site basis will result in a plethora of release limits that will be used around the Country. Release of solid materials or volumetric should either follow ANSI N13.12, or stay with RG 1.86 and FC 83-23. This reviewer believes in this instance that conservative, table listed values should be used unilaterally in order to achieve consistency in release rather than allowing calculated release limits from each site. A risk assessment from facility A will yield DCGLs different from facility B, both of which may end up sending contaminated materials to facility C. This clearly is not consistent, and is not protective of the public, although it may provide relief to the licensees. The risks from material released from any site should be consistent in practice, not theory.

#### Section 15.12, On-site disposal of Radioactive Materials

- a. If the NRC staff were actually considering these disposal activities as interim storage prior to license termination that would require excavation and off-site disposal prior to termination, then a different nomenclature should be considered (e.g., interim storage in on-site impoundments). The term disposal has connotations of permanence, and should not be used.
- b. The fact the timeliness rule applies may not be significant if the licensee has already left the site. That is one way NRC has ended up with legacy sites.
- c. Giving approval for on-site burial may only defer decommissioning costs that may as well be avoided by the licensee by requiring they ship the waste as they generate the waste.
- d. The sentence "The onsite disposal options provide alternatives for dealing with radioactive waste generated during operations, and will allow flexibility for the management of radioactive waste or allow the licensee to defer offsite disposal until decommissioning for license termination." sounds more like a description of why we have this problem rather than a reason to consider it.
- e. Do not allow licensees to defer offsite disposal until decommissioning for license termination. Get it out of there while the licensee is solvent. A review of surety for Colorado licensees showed that lowering possession limits to the minimum needed to operate is the best way to encourage timely waste disposition, and avoid increased surety. Surety is very expensive, and may not be affordable in the long-term.
- f. NRC states that "it will continue the current practice of approving onsite disposal based on a dose criterion of a "few millirem" a year" but does not list here or in SECY-03-069 any examples of these approvals. Has NRC approved onsite disposal since the LTR? What is the status of those sites?

- g. Onsite disposal that only meets the dose criterion for decommissioning (or a few millirem a year for that matter) does nothing to demonstrate impacts to biota or groundwater. The requirements in the guidance relative to dose modeling are vague at best, and only geared to a human receptor. This is not consistent with the proposed ICRP recommendations.
- h. Since onsite disposal should be discouraged, any onsite disposal must include adequate surety, not just those sites that will exceed the 100 mrem/y projection. The surety should be fully funded by another instrument if a sinking fund is used.

#### Section 15.13 Use of Intentional Mixing of Contaminated Soil

- a. The statement contained in footnote #1 is quite important and perhaps should be moved back into the text in the opening paragraph.
- b. The draft guidance that this final draft is based included a review of other agencies' regulations and policies relative to intentional mixing. It is unclear whether the NRC review of the other agencies' regulations and policies in the supporting documentation included input from the agencies on the NRC interpretation. This is important to support the ongoing efforts to harmonize regulations and practices across agencies.
- c. The practice of dilution, including clean soils from outside the footprint (which was NOT advocated in the evaluations) to meet onsite cleanup levels, does not reduce the source term. It lowers the average concentration, which makes the dose go down in the models. It does not actually clean up the source term, and may actually increase the cross-section of contamination water may infiltrate through, potentially contaminating groundwater.
- d. If the material is excavated and blended, it should be considered "treatment," and require stabilization or other processes to immobilize any remaining contamination prior to replacement. Relying on engineered barriers alone may not be consistent with RCRA. Consider making these requirements consistent with RCRA treatment requirements. Exemption from RCRA was meant to avoid dual regulation, not less protection.
- e. Not changing the classification of the waste in 10 CFR 61.55 is appropriate, but perhaps should also include not changing the classification of any waste. For example, non-11e.(2) materials may be found at sites not formally included in the UMTRA program (we have had some of these sites in Colorado), and dilution of those materials to meet WAC at a local landfill has been proposed. Recognizing that NRC has abdicated its authority over pre-1978 byproduct material means that non-11e.(2) materials that are byproduct material (but in name) is being remediated at sites under State or EPA authority. These agencies may be looking to this guidance to be considered in its reviews. Consider expanding the scope of the requirement beyond 10 CFR 61.55 only.
- f. What about mixed waste? Would this intentional mixing be considered to change the classification to hazardous only (if the radiological component is sufficiently reduced)? What about 11e.(2) at mill tailings sites? Would this be used to downblend the activity so the material can be used in the random fill zone of the cap design, or not sent to the impoundment at all? Again, this practice must be considered in the realm of "treatment."
- g. Since NRC has previously changed classifications of waste to suit individual licensees' needs (e.g., Sequoyah Fuels), it is unclear why this practice should be considered or approved.
- h. With respect to small rubble that may be included, it is recommended that there be a limit to organic material content (roots, trees) so as to not cause void spaces during settling. There should also be geotechnical parameters specified (e.g., compaction rates).

Section 4, Confirmatory Survey discussion, second new paragraph: There is a basic assumption in this paragraph that the goals of the sampling program are well defined. This is not always a reasonable assumption. The licensed facility will always choose the least costly and most uncertain sampling plan. The public in the area of the regulated facility will always choose the least uncertain sampling plan without regard to cost. Both approaches can be considered "technically sound". Consideration must be given to the public information and involvement aspects of closure. That part of the paragraph dealing with side-by-side surveys is acceptable.

Appendix D Section 2.1 That part of the planning phase dealing with setting the cleanup goals is missing.

Appendix D Section 2.2 The validity of this process is dependent on obtaining good reliable samples from the field. If this cannot be done all the rest of this document is meaningless.

Appendix 1.2 Volume 2 Source Term Abstraction. The rationale for using the arithmetic mean only, when doing dose modeling is not convincing. More justification is needed to accept these assumptions to achieve uniformity. The use of a weighted average technique would resolve this issue; if the initial assumptions described are true, then the weighted average becomes the arithmetic mean.

Should you have questions regarding these comments, please contact me at 303-692-3423 or [steve.tarlton@state.co.us](mailto:steve.tarlton@state.co.us).

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Tarlton", with a stylized flourish at the end.

Steve Tarlton, Unit Leader  
Radiation Management Unit



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November 20, 2005

Chief, Rules Review and Directives Branch  
U.S. Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, DC 20555-0001

Gentlemen:

**Subject: Kennecott Uranium Company's Comments on NUREG-1757 Supplement I Consolidated NMSS Decommissioning Guidance Updates to Implement the License Termination Rule Analysis Draft Report for Comment**

Kennecott Uranium Company is the operator of the Sweetwater Uranium Project licensed under Source Material License #1350 located in the Great Divide Basin in Sweetwater County, Wyoming. The Sweetwater Uranium Project contains one of the four remaining conventional uranium mills in the United States.

Kennecott Uranium Company has reviewed NUREG-1757 Supplement I Consolidated NMSS Decommissioning Guidance Updates to Implement the License Termination Rule Analysis Draft Report for Comment. This document appears to allow certain licensees wide latitude in addressing waste materials similar to 11e.(2) byproduct material, while actual conventional uranium recovery licensees are required to use the very stringent criteria imposed on the reclamation of uranium mill tailings impoundments by the Nuclear Regulatory Commission (NRC) through 10 CFR Part 40 Appendix A for 11e.(2) byproduct material itself. Materials with similar associated radiological risks should be treated in the same manner in the course of reclamation. If the risks associated with 11e.(2)-byproduct material require reclamation under the stringent standards of 10 CFR Part 40 Appendix A then other materials that pose similar radiological risks should be handled in the same manner. As detailed below, the NUREG does not provide the same level of protection of the public health and safety as the standards of 10 CFR 40 Appendix A.

#### **THE STRINGENT NATURE OF 10 CFR PART 40, APPENDIX A**

10 CFR Part 40 Appendix A imposes stringent requirements on the disposal and reclamation of uranium mill tailings (11e.(2)-byproduct material). These requirements include:

- **1000 Year Life and a Minimum of a 200 Year Life for Reclamation**

10 CFR Part 40 Appendix A states:

*Criterion 6--(1) In disposing of waste byproduct material, licensees shall place an earthen cover (or approved alternative) over tailings or wastes at the end of milling operations and shall close the waste disposal area in accordance with a design<sup>1</sup> which provides reasonable assurance of control of radiological hazards to (i) be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years,*

This is a very stringent criterion and requires a substantial design that will account for damage to the cover by erosion for at least 200 years. This design is costly to implement.

- **Inflation Adjusted Fee to Cover Long Term Care and Surveillance**

10 CFR Part 40 Appendix A in Criterion 10 states:

*Criterion 10--A minimum charge of \$250,000 (1978 dollars) to cover the costs of long-term surveillance must be paid by each mill operator to the general treasury of the United States or to an appropriate State agency prior to the termination of a uranium or thorium mill license.*

*If site surveillance or control requirements at a particular site are determined, on the basis of a site-specific evaluation, to be significantly greater than those specified in Criterion 12 (e.g., if fencing is determined to be necessary), variance in funding requirements may be specified by the Commission. In any case, the total charge to cover the costs of long-term surveillance must be such that, with an assumed 1 percent annual real interest rate, the collected funds will yield interest in an amount sufficient to cover the annual costs of site surveillance. The total charge will be adjusted annually prior to actual payment to recognize inflation. The inflation rate to be used is that indicated by the change in the Consumer Price Index published by the U.S. Department of Labor, Bureau of Labor Statistics.*

This stringent requirement requires that the site holder provide funds to cover **any** long-term costs related to the reclaimed site. This minimum amount is computed based upon the annual funds required to cover long-term costs related to the site earned at a 1-% real rate of return from the initial payment. The minimum amount is escalated on a site-specific basis if site surveillance or control requirements are determined to be significantly greater than those anticipated. For example, the minimum charge will be escalated if some degree of active care (e.g., vegetation control, maintenance of erosion control measures) is necessary to preserve the as-designed conditions of the site.

- **Long Term Custodian**

Consistent with Section 83 of the Atomic Energy Act, 10 CFR Part 40 Appendix A criterion 11 requires that reclaimed uranium mill tailings sites be transferred to a long term custodian such as the Department of Energy, another federal agency or a state. It is expected that the Department of Energy (DOE) will be the custodial agent for most, if not all, of these sites. The custodial agency pursuant to a perpetual NRC license implements the provisions of the long-term surveillance plan to ensure the integrity of the site. Since DOE is a perpetual licensee, there is always an agency in place to address any concerns about material control and accountability and site security, Section C of Criterion 11 states:

*C. Title to the byproduct material licensed under this Part and land, including any interests therein (other than land owned by the United States or by a State) which is used for the disposal of any such byproduct material, or is essential to ensure the long term stability of such disposal site, must be transferred to the United States or the State in which such land is located, at the option of such State.*

- **No Active Maintenance**

Criterion 12 requires that no active/ongoing maintenance be required for reclaimed uranium mill tailings sites stating:

*Criterion 12--The final disposition of tailings, residual radioactive material, or wastes at milling sites should be such that ongoing active maintenance is not necessary to preserve isolation.*

Reclamation of uranium mill tailings impoundments rests upon four (4) legs, those being:

- Reclamation to last 1,000 years (minimum of 200 years)
  - A long term custodian in the form of the Federal government or a State
  - Payment of a fee (minimum of \$250,000. in 1978 dollars) that will earn interest at a 1-% real rate of return that will cover annual costs related to the site.
  - Requirement that the reclaimed tailings require no active maintenance
- **Protection of Groundwater**

In addition, 10 CFR Part 40 Appendix A contains stringent requirements for the protection of groundwater. These are very stringent requirements that an entire industry is required to meet and are summarized in the beginning of Criterion 5 as follows:

*Criterion 5--Criteria 5A-5D and new Criterion 13 incorporate the basic ground-water protection standards imposed by the Environmental Protection Agency in 40 CFR Part 192, Subparts D and E (48 FR 45926; October 7, 1983) which apply during operations and prior to the end of closure. Ground-water monitoring to comply with these standards is required by Criterion 7A.*

In regards to the management and disposal of 11e.(2)-byproduct material the Commission prefers to consolidate these wastes in a few large easily managed and monitored impoundments as opposed to a number of scattered sites. This is summarized in 10 CFR Part 40 Appendix A Criterion 2 which states:

*Criterion 2--To avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations, byproduct material from in situ extraction operations, such as residues from solution evaporation or contaminated control processes, and wastes from small remote above ground extraction operations must be disposed of at existing large mill tailings disposal sites; unless, considering the nature of the wastes, such as their volume and specific activity, and the costs and environmental impacts of transporting the wastes to a large disposal site, such offsite disposal is demonstrated to be impracticable or the advantages of onsite burial clearly outweigh the benefits of reducing the perpetual surveillance obligations.*

This philosophy is also used in addressing spent nuclear fuel, hence the construction of a single large storage/disposal facility near Yucca Mountain, Nevada.

*The National Mining Association's and the Fuel Cycle Facilities Forum's White Paper on Direct Disposal of Non-11e.(2) Byproduct Materials in Uranium Mill Tailings Impoundments* discusses non-proliferation of sites stating:

*The use of existing mill tailings impoundments to dispose of non-11e.(2) byproduct material also is philosophically consistent with Criterion 2 of Appendix A which requires NRC "to avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations" and would be consistent with NRC's long-standing policy favoring disposal over storage of LLRW wastes.*

*(See e.g., 58 Fed. Reg. 6730, 6731 (February 2, 1993), where the Commission explained that: "Although LL[R]W can be safely stored, NRC believes that the protection of the public health and safety and the environment is enhanced by disposal, rather than by long-term, indefinite storage of waste. Disposal of waste in a limited number of facilities licensed under 40 CFR Part 61 or compatible Agreement State regulations, will provide better protection of the public health and safety and the environment than long-term storage at hundreds or thousands of sites around the country.")*

Criterion 2 clearly recognizes the benefit of the placement of radioactive material in large centralized sites as opposed to many small, scattered sites in order to reduce perpetual surveillance obligations and enhance long-term security. Clearly bases on the above citation from 58 Fed. Reg. 6730, 6731 (February 2, 1993), the Commission agrees with this concept and the concept that wastes should be placed for disposal rather than be stored for indefinite periods as is proposed in NUREG-1757. A small number of large monitored disposal sites poses far fewer risks than a large number of decentralized disposal sites.

## **10 CFR PART 40 APPENDIX A REGULATIONS ARE MORE COMPREHENSIVE AND STRINGENT THAN NUREG-1757 STANDARDS**

The regulations addressing 11e.(2)-byproduct material are clear and specific. *NUREG-1757 Supplement I Consolidated NMSS Decommissioning Guidance Updates to Implement the License Termination Rule Analysis* addresses on site reclamation of other types of wastes which are in some cases similar to 11e.(2) byproduct material. *NUREG-1757 Supplement I Consolidated NMSS Decommissioning Guidance Updates to Implement the License Termination Rule Analysis* establishes certain definitions, which are as follows:

### ***Durable institutional controls.***

A legally enforceable mechanism for restricting land uses to meet the radiological criteria for license termination (10 CFR 20, Subpart E). Durable institutional controls are reliable and sustainable for the time period needed.

### ***Reasonably foreseeable land use.***

Land use scenarios that are likely within 100 years, considering advice from land use planners and stakeholders on land use plans and trends.

### ***Robust engineered barrier.***

A man-made structure that is designed to mitigate the effect of natural processes or human uses that may initiate or accelerate release of residual radioactivity through environmental pathways. The structure is designed so that the radiological criteria for license termination (10 CFR 20, Subpart E) can be met. Robust engineered barriers are designed to be more substantial, reliable, and sustainable for the time period needed without reliance on active ongoing maintenance.

These definitions, while establishing a certain level of protection, do not specify the same levels of protection that 10 CFR Part 40 Appendix A requires in regard to an earthen cover, long term institutional controls or a long term governmental site custodian that will own the site in perpetuity.

In addition, it describes a *Long Term Control License* stating:

*The LTC license is preferred over the LA/RC option for institutional controls involving NRC, as NRC licensing and enforcement is a proven approach, and the LA/RC option has some limitations: it has not been implemented by the NRC or legally tested; NRC's ability to enforce the LA/RC depends on the laws of the jurisdiction where the site is located; and it would be more difficult for NRC to enforce the LA/RC, in comparison to the LTC license. The LTC license is preferred for sites that will require more complex monitoring or maintenance activities. Complex monitoring or maintenance activities could include maintenance of an engineered barrier and groundwater or radiological monitoring activities, which require the site owner to have necessary knowledge, expertise, or technical abilities to carry out these activities and comply with all provisions of the LTC license.*

The NUREG does not require construction of covers with a 1,000-year life. It merely states:

*In some cases, protection can be sustained for long time periods by using robust designs that do not rely on ongoing active maintenance. For example, erosion protection covers designed for up to 1000 years that have been used for uranium mill tailings sites may also have use at some decommissioning sites.*

Regarding covers lasting 1, 000 years it only states that they "... may also have use..." It does not require them for materials posing a similar radiological risk to 11e(2)-byproduct material.

The NUREG discusses funding stating:

*The LTR requires that sufficient financial assurance be established to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site. A trust fund, or other financial assurance mechanism, would be established independent from the custodian and managed by a trustee. Sufficient funds would need to be placed into the trust fund to produce an annual income that is sufficient to cover (1) the annual average costs of controls, maintenance, and monitoring, if needed; (2) independent third party oversight costs; and (3) trustee fees and expenses. Thus, the fund balance would be sustained over time and not depleted because the annual costs of controls and maintenance are provided by the annual interest income.*

These funding requirements are nowhere near as stringent as those required for uranium mill tailings sites.

The NUREG discusses site oversight stating:

*The LTR requires an independent third party to provide oversight to assure that the custodians' controls are performed and corrective actions are taken, as needed, to sustain the controls and maintenance. The independent third party also would act as a backup to the custodian to assume and carry out the responsibilities for control and maintenance, if needed. The independent third party could be a government entity, or even NRC (under its new policy for the LTC license or legal agreement/restrictive covenant) if other government entities do not accept this responsibility.*

This language does not even approach the custodial requirements for uranium mill tailings sites. This language does not require a governmental long-term custodian such as a State or the Federal government.

The document clearly recognizes the inherent superiority of cover designs for uranium mill tailings impoundments stating:

*It should be noted, however, that for those cases where an erosion control cover is designed in accordance with the uranium mill tailings guidance in NUREG-1623, a case might be made for a durable, long-lived engineered barrier that does not rely upon ongoing active maintenance (i.e., maintenance needed to assure that the design will meet specified longevity requirements) and associated future costs. For this case, no degradation of the erosion control cover would be assumed.*

It does not however require a cover design as described in NUREG-1623 for material posing a similar radiological risk to 11e.(2)-byproduct material.

The NUREG does reference rock durability requirements for erosion protection covers for uranium mill tailings impoundments stating:

*A procedure for determining the acceptability of a rock source is presented in NUREG-1623 and generally includes the following:*

- *Test results from representative samples are scored on a scale of 0-10.*
- *The score is multiplied by a weighting factor, which focuses the scoring on those tests that are the most applicable for the particular rock type being tested.*
- *The weighted scores are totaled, divided by the maximum possible score, and multiplied by 100 to determine the rating.*
- *The rock quality scores are then compared to the criteria, which determines acceptability.*

The document essentially endorses the cover design requirements for uranium mill tailings impoundment stating:

*The staff could approve an engineered barrier design that is effective and maintains control of the material for a period exceeding 1000 years. Using the guidance and rationale contained in NUREG-1623, the barriers should be designed to resist severe localized rainfall events and large floods on nearby streams. The design rainfall event should be the PMP, and the design flood should be the PMF. A design that meets the suggested flooding and erosion protection criteria of NUREG-1623 is acceptable. The rock quality score should be at least 85, and selection of input parameters to various models should account for the unknowns associated with a very long stability period and the high-risk site.*

It does not however require the use of uranium mill tailings impoundment cover design for materials posing similar radiological hazards to uranium mill tailings.

In spite of the NUREG's reference to and endorsement of the requirements for the reclamation of uranium mill tailings sites and discussion of their applicability to onsite radioactive waste disposal it does not require them. In addition, it ignores an important tenet of radioactive waste disposal that being non-proliferation of sites.

This is an important issue because radioactive materials posing similar radiological risks should be regulated in the same fashion. This issue is addressed in the National Mining Association (NMA's) comments on *Approaches to an Integrated Framework for Management and Disposal of Low-Activity*

*Radioactive Waste*: Request for Comment Federal Register (FR) Vol. 68, No. 222 / Tuesday, November 18, 2003. The National Mining Association (NMA's) comments state:

*If the underlying assumption ("ideally wastes with similar risks should be managed proportionately to the risk they represent") is valid the logic is equally applicable to 10 CFR Part 61 LLRW disposal facilities, 10 CFR Part 40 11e.(2) disposal facilities and Subtitle D and other landfills.*

## **NUREG-1757 CREATES A DOUBLE STANDARD FOR THE RECLAMATION AND DISPOSAL OF RADIOACTIVE WASTES**

The basis of these regulations is the protection of public health, safety and the environment, specifically protection from radiological risks. Implementation of NUREG 1757 as drafted would create a double standard for the reclamation/disposal of radioactive wastes. Uranium mill tailings would be subject to the very stringent requirements of 10 CFR Part 40 Appendix A while other similar materials would be subject to the less stringent requirements of this NUREG. In addition, this NUREG would allow disposal sites to proliferate.

This problem is not a hypothetical one. It is a real one. Shield Alloy Metallurgical Corporation has a site in Newfield, New Jersey. It lies essentially in the center of the Boro of Newfield. It contains wastes that comprise *"20,000 cubic meters of high ratio and standard ferrocolumbian slag which contains about 400 pCi/g of uranium, a total of about 23 Curies."* (Personal communication - State of New Jersey). 400 picoCuries per gram of natural uranium is approximately 0.6 milligrams per gram which is 0.06%. Given that its uranium content is greater than 0.05%, it is licensable source material. In fact, these materials are regulated under a source material license. It can only be assumed unless proven otherwise that this material is in radiometric equilibrium meaning that it has present within it isotopes from the entire uranium-238 and 235 decay chains in their naturally occurring activities.

This site and the materials contained in it are discussed in detail in a document located on the commission's web site at:

<http://www.nrc.gov/info-finder/decommissioning/complex/shieldalloy-metallurgical-corporation-smc-.html>

This document discusses the material on site stating:

*This material, called pyrochlore, is a concentrated niobium ore containing greater than 0.05 percent natural uranium and natural thorium. SMC was licensed by the NRC to ship, receive, possess, use and store source material under SMB-743. During the manufacturing process, the facility generated slag, and baghouse dust. Currently, there is approximately 18,000 m<sup>3</sup> (635,580 ft<sup>3</sup>) of slag and approximately 15,000 m<sup>3</sup> (529,650 ft<sup>3</sup>) of baghouse dust contaminated with natural uranium, thorium, and daughters stored on-site.*

This document discusses the future plans for the site and the contained materials stating:

*Consequently, the NRC staff developed guidance on the use of a possession only license for long term control (LTC) of the site and provided it to SMC in May 2004. A meeting between NRC and SMC was held on June 29, 2004 to ensure that SMC understands the guidance. NRC staff currently anticipates SMC's submittal of a revised decommissioning plan in October 2005.*

*Although the LTC approach is in the early stages of planning, State of New Jersey officials (e.g., New Jersey Department of Environmental Protection (NJDEP), Senator Corzine, State Senator Madden) have expressed concerns with the use of NRC's LTC license for the SMC site. Their concerns are: 1) the proposed approach would create an unlicensed low-level radioactive waste disposal facility; 2) that there has not been a meaningful opportunity for community discussion; and 3) the radioactive material should be disposed of and not left for future generations.*

*NRC addressed these concerns by explaining that the LTC license provides institutional controls after decommissioning of the site, and therefore is not a low-level radioactive waste disposal facility. The SMC site was never used for the disposal of radioactive materials from other sites, and it is not planned to be used for that purpose in the future. NRC also explained that this policy is the result of many years of NRC experience and that NRC's role enhances the assurance of proper restricted use. Furthermore, restricted use under the LTR has been a decommissioning option available since the LTR was finalized in 1997. Finally, opportunities for public involvement have already occurred during NRC's licensing meetings that are open to the public. Additionally, in the future, there will be many opportunities for community discussion, as required by the NRC regulations, during SMC's development of the decommissioning plan and NRC's review of the plan.*

This material clearly possesses the activity of uranium mill tailings derived from ores containing 0.06% natural uranium. In fact, its activity should be slightly greater than tailings derived from a uranium ore in equilibrium containing 0.06% natural uranium, since the uranium is still present in the ShieldAlloy material while in uranium mill tailings most (usually greater than 90%) of the uranium has been removed by the milling process leaving primarily uranium decay progeny in the tailings. These materials are calculated to contain a maximum aggregate activity of 2.44E-09 curies per gram assuming no loss of radon from the material and presence of all decay products in equilibrium activities. This calculation is based on *Determination of the Generic Waste Acceptance Criteria Used in The National Mining Association's and the Fuel Cycle Facilities Forum's White Paper on Direct Disposal of Non-11e. (2) Byproduct Materials in Uranium Mill Tailings Impoundments* (Oscar Paulson - 2005)

This ShieldAlloy material is equivalent in activity and by extension radiological risk to some uranium mill tailings regulated under the stringent requirements of 10 CFR Appendix A. For example, the tailings at the Sweetwater Uranium Project represent wastes from the processing of uranium ore with an average grade of 0.029% natural uranium which is less than half of the uranium concentration (and by extension less than half of the activity) of the ShieldAlloy wastes. The tailings at the Sweetwater Uranium Project should represent roughly half of the radiological risk of the ShieldAlloy wastes yet they are regulated under the stringent requirements of 10 CFR Part 40 Appendix A while the ShieldAlloy materials may ultimately be allowed to be capped and left in the midst of a populated area under a Long Term Control License. Materials of similar risk should be regulated similarly. If in fact materials with these low activities are of truly low risk, than conventional uranium recovery licensees should be allowed the same latitude with their tailings as ShieldAlloy may be allowed with their wastes. If in fact these materials require the stringent reclamation requirements imposed by 10 CFR Part 40 Appendix A, then the requirements of 10 CFR Part 40 Appendix A should be imposed on the ShieldAlloy materials. It is also interesting to note that most uranium mill tailings sites are located in remote arid areas in the American West while the ShieldAlloy materials are located essentially in the center of a town in a reasonably wet area. Logic would dictate that materials located in the center of an inhabited area should be reclaimed to higher standards than materials located in arid uninhabited areas.

A solution exists to the problems posed by the ShieldAlloy material and materials like it. The National Mining Association (NMA) and the Fuel Cycle Facilities Forum submitted a white paper to the Commission entitled *The National Mining Association's and the Fuel Cycle Facilities Forum's White*

*Paper on Direct Disposal of Non-11e.(2) Byproduct Materials in Uranium Mill Tailings Impoundments.* This document proposes a solution to the conundrums posed by materials such as the ShieldAlloy material and to the issues of proliferation of sites, which would be created by NUREG 1757. This document is being included by reference. This document proposes disposal of materials similar to the ShieldAlloy materials in uranium mill tailings impoundments. In addition, waste materials containing extractable quantities of uranium such as the ShieldAlloy material could be processed by conventional uranium mills as alternate feed in which case the processing wastes following removal of the uranium would be by definition 11e.(2) byproduct material and be placed in the tailings impoundment.

Materials similar to 11e.(2) byproduct material currently placed in uranium mill tailings impoundments would include any materials that are licensable source material they either already contain all of the decay progeny present in uranium mill tailings or will in the future once the decay progeny fully ingrow (such as the ShieldAlloy materials), materials contaminated with source material which must be removed from a given site and any waste materials containing the decay chain progeny from source material from which the original source material has been either wholly or partially removed.

The Commission agrees in principle with this concept. Chairman Meserve (Commission Voting Record, SECY-99-0012: Use of Uranium Mill Tailings Impoundments for the Disposal of Waste Other than 11e.(2) Byproduct material and Reviews of Applications to Process Material Other than Natural Uranium Ores, July 26, 2000) agreed with the NRC Staff in that mill tailings sites may be used for the direct disposal of non-11e.(2) materials and stated that:

*"Mill tailings sites can clearly provide appropriate disposal locations for materials that are physically, radiologically, and chemically similar to section 11e.(2) byproduct material. This might include non-AEA material (e.g., NORM/TENORM), as well as AEA material (i.e., source, 11e.(1) byproduct material, and special nuclear material). Moreover, in light of the fact that tailings impoundments must comply with requirements that are consistent with standards for the disposal of similar hazardous chemical wastes, see 42 USC §§ 2022(b)(2), 2114(a)(3), such impoundments offer the opportunity for safe disposal of certain materials that are regulated under RCRA, TSCA, and CERCLA. Thus, consistent with Commission policy of lowering the [cost of] decommissioning waste disposal and using existing mill tailings impoundments to dispose of materials in circumstances in which there is adequate protection of the public health and safety and the environment, I conclude that the Commission should allow for the disposal of material other than 11e.(2) byproduct material in tailings impoundments."*

In addition, the Strategic Assessment Rebaselining Initiative (SARI) noted:

*"Because several...sites [currently undergoing decommissioning] have large quantities of uranium- and thorium-contaminated waste with characteristics similar to those of mill tailings, it may be cost-effective to dispose of decommissioning waste at existing mill sites..."* U.S. Nuclear Regulatory Commission, Strategic Planning Framework, 9-11 (September 16, 1996) (emphasis added).

## CONCLUSION

Kennecott Uranium Company believes that the following reclamation and disposal standard should be created for the above-described classes of materials. Kennecott Uranium Company proposes the following regulatory language to be included in NUREG-1757:

*Waste materials generated at any licensed site during operation, decommissioning, decontamination and/or reclamation that are either:*

- 1. Licensable source material;*
- 2. materials contaminated with source material that must be otherwise addressed during decommissioning and decontamination or;*
- 3. waste materials containing the decay chain progeny from source material from which the original source material has been either wholly or partially removed or never was initially present;*

*shall either be*

- 1. processed as alternate feed at a licensed uranium mill provided that the contained source material is uranium in its naturally occurring isotopic proportions and it is present in extractable quantities; or*
- 2. placed for disposal in either an on-site or off-site impoundment constructed in accordance with 10 CFR Part 40 Appendix A and 40 CFR Subpart D—Standards for Management of Uranium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended.*

Inclusion of this language will insure that materials of similar radiological risk to uranium mill tailings (11e.(2) byproduct material) will in be treated in an identical manner to 11e.(2) byproduct material thus insuring that materials posing similar risks are addressed in a similar manner.

Kennecott Uranium Company appreciates the opportunity to comments on this important issue. If you have any questions please do not hesitate to contact me.

Sincerely yours,

*Oscar Paulson*  
Oscar Paulson  
Facility Supervisor

cc: Roger Strid  
Katie Sweeney - National Mining Association (NMA)

*FinalComments-Submitted.doc*

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December 28, 2005

Chief, Rules Review and Directives Branch  
US Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, DC 20555-0001

Re: NUREG-1757 Supplement 1 Draft

To Whom It May Concern:

The New Jersey Department of Environmental Protection (Department) Division of Environmental Safety & Health has reviewed Supplement 1 of NUREG-1757 in the context of the applicability to contaminated sites currently in New Jersey. Shieldalloy Metallurgical Corporation (SMC) has submitted a decommissioning plan that calls for leaving 57,000 cubic meters of contaminated slag and baghouse dust in the town of Newfield, New Jersey under the auspices of a Long Term Control (LTC) license. It is interesting that the Nuclear Regulatory Commission (NRC) chose to offer this option in a policy directive, and now this draft guidance, rather than as an update to 10 CFR 20 where it would undergo more rigorous public scrutiny. It appears, as we proceed through the steps of NRC possibly issuing an LTC license, that the citizens of Newfield, including elected officials and appointed planning board officials, have no opportunity to participate in decision-making on a site within their boundaries. The following exchange is from the transcripts of one of the public Site Specific Advisory Board meetings which was attended by staff of the NRC.

**Citizen:** So your decision won't be based on whether or not the community submits a petition to you saying no, we don't want this here. That doesn't really hold that much weight with you. As long as they meet the restrictions that you set in place, then that's basically it. So basically having meetings with the public is just to assure the public that it's going to be done in a proper way; not whether or not we're going to stop it?

**NRC:** That's correct.

**Citizen:** So in other words, you're saying already that as long as they do what you say, we're stuck with the slag pile.

**NRC:** If they meet everything that we require.

**Citizen:** Well, then why are we having public meetings?

**NRC:** Because maybe you'll raise an issue that causes them to go back and have to reassess.

The Department believes that public input is an essential part of the cleanup of any site.

The Division does not support the concept of the LTC license. We need look no further than NRC's own regulations to express our objections. The whole idea of the Compact system for low level radioactive waste (LLRW) disposal and the disposal of mill tailings under 10 CFR Parts 61 and 40, give us insight into NRC's reasoning for promulgating regulations regarding waste disposal. Criterion 2 of Appendix A to 10 CFR 40 regarding disposition of wastes from uranium mills sets to avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations. Regarding the LLRW disposal regulations, the Commission explained that; "Although LLRW can be safely stored, NRC believes that the protection of the public health and safety and the environment is enhanced by disposal, rather than by long-term, indefinite storage of waste. Disposal of waste in a limited number of facilities licensed under 10 CFR 61 or compatible Agreement State regulations, will provide better protection of the public health and safety and the environment than long term storage at hundreds or thousands of sites around the country." Indeed, in September, 2005 the Health Physics Society recently revised its position statement on Low-Level Radioactive Waste in which it says "the goal of managing LLRW is to ensure the safety of workers and the public and to protect the environment. To achieve this goal, disposal, not long-term storage, is the best and safest long-term approach."

The Department views the LTC license as long-term storage, not permanent disposal since it would not meet the criteria that the NRC has established for disposal facilities. While we acknowledge that an LTC license is a last resort, and there will not be hundreds of these sites around the country, we are still interested in providing better protection of the public health and safety and the environment in New Jersey.

Our specific comments follow. I hope you will consider our comments in the revision of this draft NUREG. If you have any questions you may contact Jenny Goodman at (609) 984-5498.

Sincerely,

Jill Lipoti, Ph.D., Director  
Division of Environmental Health & Safety

c: Samuel A. Wolfe, Assistant Commissioner, Environmental Regulation

## **II Restricted Use, Institutional Controls, and Engineered Barriers**

### **17.7 Restricted Use and Alternate Criteria**

#### **17.7.1 Overview**

Why is the LTC option discussed under license termination since the license is not being terminated? Under the normal restricted use, alternate criteria, or Legal Agreement/Restricted Covenant (LA/RC) options, the license is terminated.

In step 1 on page II-7 for selecting an option for restricted use or alternate criteria, the dose assessment is required to be performed without taking credit for institutional controls to restrict future site use. This should be reworded to say "without institutional controls **and/or engineered barriers** to restrict future site use."

Step 2 should reference the relevant volume and sections in NUREG-1757 on how to do the ALARA analysis. Is the dose assessment that is used in the ALARA analysis the one without institutional and engineering barriers, using the resident farmer scenario? This should be made clear.

Step 4. Lower Hazard Level: calculated dose is less than the public dose limit of 1.0 mSv/y (100 mrem/y) assuming institutional controls **and/or engineered barriers** are not in place. Higher hazard level: calculated dose is 1.0-5.0 mSv/y (100-500 mrem/y) assuming institutional controls **and/or engineered barriers** are not in place.

If it is determined that the site is higher risk, does this mean that if the dose is greater than 500 mrem/y without institutional or engineered barriers, then the LTC license is not an option? The Department believes that this would be prudent policy on the part of the NRC. This should be incorporated into the steps and the flowchart.

#### **Section 17.7.2.2 Institutional Controls and Engineered Barriers**

Paragraph 4 on page II-13 discusses an LTC license where there are both restricted and unrestricted use areas. The first sentence is not clear. Does the NRC want the entire site under the LTC license or not? The discussion on the value of the property is optimistic and presumptuous. Will there be a buyer for the unrestricted portion of a "decommissioned" site which still requires that the property be licensed by the NRC? The Department agrees that maintaining single ownership of a site with both restricted use and unrestricted use areas is warranted to sustain future ownership and long-term protection.

#### **Duration of Institutional Controls**

What is the justification for the NRC to allow institutional controls (the LTC license) to be durable indefinitely, especially in light of the LLRW facility regulations which state that institutional controls cannot be relied on for more than 100 years (10 CFR 61.59)? Please do not respond that the LTC license is not regulated under 10 CFR 61. The end result is a LLRW disposal facility that contains waste from a single generator. Unfortunately, this disposal facility (SMC) will not have to abide by the regulations for siting or operating LLRW facilities.

## Detriments Associated with Institutional Controls

How are potential impacts on sale of the property or value of the property due to the NRC license, or perceptions that the NRC could potentially require further cleanup in the future (i.e. lack of finality), going to be determined by the licensee? Obviously the licensee will present an optimistic appraisal of the situation. Can some guidance be given or can the NRC provide advice to the licensee on how they can obtain guidance on determining this? Would the NRC ever disapprove an LTC license because of this kind of detriment? What would it take for the NRC to rule out an LTC license due to this detriment? Does the town planning board have an opportunity to weigh in with their vision for the future use of the site? Can the elected members of a town government represent their citizen's wishes and determine the end use of the site?

## Engineered Barrier Analysis

### 17.7.2.3 Site Maintenance and Long-Term Monitoring

#### Long-term Monitoring

Cannot locate Section 17.7.3.2.1 or Section 17.7.3.3.2 in Vol. 1.

## Enforcing Institutional Controls

What if a State is currently not an Agreement State, does not approve of the LTC license option, but later becomes an Agreement State? Will the NRC continue to monitor and enforce the LTC license? Since the LTC license is not in the NRC regulations, it would seem that it could not be used as a compatibility issue in determining eligibility for Agreement State status.

The difference between the Legal Agreement/Restricted Covenant (LA/RC) option and the LTC option regarding enforcement is difficult to discern. If NRC is going to perform periodic inspections and be the enforcing party for the LA/RC, why not continue the license? NRC needs to be more clear as to when a site would be allowed to fall under the LA/RC option vs. the LTC license. Also incorporate this decision-making into Figure 17.1.

## Sufficient Financial Assurance

Again, since the LA/RC option has to include the same costs of the LTC license option, it is difficult to differentiate between the two.

The last paragraph of this section explains that the licensee is allowed flexibility to request approval for removing the residual material, terminating the license, and releasing the site for unrestricted use. Does this mean that the NRC will not allow a request to terminate the LTC license and release the site under restricted use standards?

## Evaluation Findings

### Evaluation Criteria

The second paragraph of page II-26 discusses the duration of the monitoring. For long-lived radioactive materials (half-lives in the millions or billions of years), how long should monitoring be performed?

### 17.7.2.4 Obtaining Public Advice

After being a part of a Site Specific Advisory Board (SSAB) on obtaining a LTC license, it becomes apparent that the current guidance is not adequate. While the licensee should gather

members of the community and other affected parties, these members may not be qualified to answer questions on total effective dose equivalent, financial assurance, and enforcement issues. It seems that the public is at a disadvantage, simply because they lack expertise to really analyze these specific charges. It would seem appropriate, given the burden that an LTC places on a community for an indefinite period of time, for the NRC or licensee to be required to fund independent advisors, such as health physicists, lawyers, and/or financial advisors. These advisors(s) would be selected by the members of the SSAB, and tasked with providing an independent review and analysis of the proposed actions.

#### 17.7.2.5 Dose Modeling and ALARA Demonstration

##### Acceptance Criteria

##### Information to be Submitted

Dose assessments are usually carried out to 1000 years. Why does the NRC only require "possibly up to 100 years"? This seems unprecedented, especially when the radioactive materials that may be left in the community have half lives in the millions and billions of years. Also, since the NRC determined that 1000 years was presumed to be the lifetime of the radionuclides of interest, why would this time period apply when the nuclides of interest have half lives in the millions and billions of years? Is the LTC option only available to sites where the radionuclides present will be able to decay for 10 half-lives within the 1000 year time period, thus restricting the LTC option to radionuclides under a 10 year half-life?

What happens when the dose to the average member of the critical group could exceed 500 mrem/y? Will the NRC make sure this doesn't happen by simulating degradation of engineered barriers for only 100 years?

#### 17.8 Obtaining Public Advice on Institutional Controls

The last bullet on page II-37 states that "the licensee is not required to reach consensus with the affected parties on the various aspects of the proposed institutional controls." What happens when there is consensus from the entire SSAB against various aspects of the institutional controls? Does that affect the NRC's decision as to whether to issue an LTC license or an LA/RC?

##### Suggestions for Effective Public Involvement

The first paragraph suggests that the stakeholders of affected parties can define the term "undue burden". What happens if these individuals determine that there is an undue burden on the community? Will the NRC deny the LTC license? What are the constraints that are placed on the NRC's decision-making ability given that they are not members of the community and were not duly elected to represent the citizens?

The third paragraph on page II-43 states that preliminary results of dose assessments could be discussed. How can the SSAB be expected to determine whether institutional controls are adequate to provide reasonable assurance that the doses will be less than 25 mrem/y if only preliminary results are available?

## Appendix M

The deleted text on page II-48 should be replaced with "Also note that there is some potential that a LA/RC could be revisited as a result of the Memorandum of Understanding with the Environmental Protection Agency".

### M.1.4 Institutional Control Implementation Issues

The NRC states that the long-term effectiveness of institutional controls is recognized as a significant challenge given many examples of institutional control failures even after short periods of time. Why then is an NRC license considered a fail safe institutional control? There is no evidence to suggest that an NRC license will be a durable institutional control considering the NRC's track record regarding lost sources. While a "site" cannot be lost, the point is that even NRC licenses are not faultless.

The policy for sites where the dose results in over 500 mrem/y assuming no institutional controls or engineered barriers in place should be stated. Neither the LTC license option nor the LA/RC option should be allowed in those cases.

### M.3.1 Purpose of the LTC License

A site with an LTC license should not be considered "decommissioned". MARSSIM defines decommissioning as follows: To remove a facility or site safely from service and reduce residual radioactivity to a level that permits release of the property and **termination** of the license and other authorization or site operation.

### M.3.4 Eligibility for Restricted Release and the LTC License Option

Letter c. states that the LTC option would be acceptable if the site would need long-term monitoring or maintenance requiring technical skills to conduct. This sounds more like a reason why the LTC option would not be acceptable. Was this a mistake?

### M.3.5 Partial Restricted Release under an LTC License and Maintaining Single Ownership of the Site

The NRC states that government-owned sites could be subdivided and the unrestricted use portions could be released from the license for reuse. For private sites, however, the license boundaries must be maintained and sale of the unrestricted portions of the site, separate from the restricted portions, is not allowed. If state or federal ownership is considered as durable as an LTC license, as indicated in Table M.1, why would government-owned sites be allowed to sell unrestricted portions? Either they should not be allowed to sell the unrestricted portions, or Table M.1 should be changed to show that State or federal ownership is more durable than an LTC license.

The first "Pro" listed on page II-58 states that permitted uses on the unrestricted portions of the property should enhance future resale of the site (with both restricted and unrestricted use portions) as a whole. What justification does the NRC have for this statement? What entity would ever want to purchase a property with a \$60 million liability? Clearly it is unrealistic to expect that the site would ever be sold, which demonstrates that there is an undue burden on the community, in the Newfield case.

The second listed "Pro" states that this approach is intended to allow reuse of the site while enhancing the long-term protection. How does allowing access to unrestricted portions of the site enhance the long-term protection? One could view this as a detriment to long-term protection because more activity at a site could result in more trespassers.

The Department agrees that maintaining ownership of the complete site would help ensure monitoring over the long-term.

The first "Con" also demonstrates that there is an undue burden on the community. The second "Con" gives the impression that the NRC is being more lenient with spent nuclear fuel than with material that is being allowed to remain under the LTC license. This should be expanded to explain any required buffer zones around the stored spent fuel. The third "Con" speaks for itself.

#### M.3.7 Flexibility to Seek Unrestricted Release in the Future

The NRC should also have flexibility to *require* that the licensee dispose of the material under certain circumstances. For example, if a new inexpensive disposal option becomes available, the NRC should require the licensee to show that leaving the material under the LTC license is still ALARA. To be fair to the community, this demonstration should exclude the cost of dismantling any engineered barriers. The starting point should be pre-LTC license. Other circumstances that would require cleanup might be consistent problems with maintaining the integrity of engineered barriers, or enforcement actions against the licensee. The title of section M.3.7 should be "Flexibility to Seek ~~Require~~ Unrestricted Release in the Future".

#### M.3.11 Finality of Decommissioning Decisions

This section illustrates the whole problem with the LTC license option. There is no finality in the NRC decisions. There would always be the possibility of requiring a cleanup, and therefore it is highly unlikely that the site would ever be able to be put into productive use. This is an undue burden on the community.

It seems that the only way an LTC license would not be an undue burden to the community is if the material had a short half life.

#### M.4 Legal Agreement and Restrictive Covenant (LA/RC)

This section shows that the NRC should remove this option from the guidance. There is no reason to allow this option other than the fact that the licensee may want to terminate the license or that a new owner does not want a license. Since the LA/RC is only a durable institutional control versus the NRC license, which is listed as the most durable institutional control, what is the advantage of this option for the NRC and the public?

#### M.5 Total System Approach to Sustain Site Protection at Restricted Use Sites

The NRC states that institutional controls should be established with the objective of lasting 1000 years to be consistent with the time-frame used for calculations. Why then does the NRC require only 100 years for the dose assessment calculations to demonstrate ALARA?

#### **M.5.1 Legally Enforceable Institutional Controls**

In New Jersey regulations, institutional controls do not refer to any physical kind of control such as fences, signs, markers, or vegetation. The Department's definition of institutional controls includes use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions. An NRC license would be considered an institutional control, but not a fence. The Department's definition of engineering controls includes caps, covers, dikes, trenches, leachate collection systems, radon remediation systems, signs, fences and physical access controls.

#### **M.5.6 Maximum Limits on Dose if Institutional Controls Fail**

Because it is not possible to preclude the failure of controls, the NRC should make it clear that the dose caps act as a safety net if institutional controls ~~or engineered barriers~~ fail.

#### **3.5 Use of Engineered Barriers**

In the third paragraph on page II-73, it seems that the NRC is changing the definition of unrestricted. Unrestricted release should mean that there are no restrictions, including no restrictions on removing or modifying an engineered barrier. To allow otherwise is extraordinary.

The last paragraph on page II-73 states that the licensee has to document how the engineered barriers will be maintained for "as long as necessary". What is the definition of "as long as necessary"? The Department's regulations specify an "appropriate period of time" to mean the length of time for the radionuclides to decay seven half-lives. On a technical basis, this definition would seem suitable for the LTC license option.

The NRC states that engineered barriers should be designed with the goal of remaining effective over the time period needed to achieve compliance, especially for long-lived radionuclides. The Department agrees with this statement.

What does "over the time period of compliance" mean for radionuclides with half-lives in the billions of years?

What is the definition of "reasonably foreseeable natural or human processes"? Isn't it reasonable to assume that no engineered barrier can withstand human processes? For example, once institutional controls fail (or even before), someone could come in with earth moving equipment so they can level the land for some other purpose and in doing so, degrade the engineered cap and uncover and spread the radioactive material.

The NRC suggests that natural analogs might provide information as to the possible long-term changes to an engineered system. Can the NRC give examples of natural analogs?

Experience of 10+ years for degradation of engineered caps has little applicability when the timeframe required to be met is 1000 years, and the material will actually remain for billions of years.

#### **3.5.4.3 Potential Levels of Functionality and Uncertainty**

The last sentence on page II-87 states that most engineered caps would not provide a substantial barrier to common practices assumed in intruder analysis (e.g. home construction, well

installation). Based on this statement, isn't it reasonable to assume complete failure of the engineered barrier?

### **III Onsite Disposal of Radioactive Materials**

#### **15.12 Onsite Disposal of Radioactive Materials under 10 CFR 20.2002**

The NRC requires that detailed information be provided on engineered structures or barriers. Is the licensee supposed to assume failure of the engineered barriers in determining if the dose is within the given criteria?

#### **Option 2**

The second paragraph implies that a restricted use site is a future legacy site. Then why would restricted use be allowed?

### **V. Intentional Mixing**

The Department allows intentional mixing when it can be shown that the material to be mixed was native to the site, e.g. a site that mined sand and removed certain minerals which left the naturally occurring radioactive materials concentrated above soil cleanup standards. In this case, the Department would allow offsite uncontaminated soil to be used in the intentional mixing.

### **VI Removal of Material After License Termination**

#### **G.1.1 Structures Versus Equipment**

**Building Structures, and Systems and Components that May Be Left in Place at License Termination**

Number 3. indicates that materials may be left onsite if the potential dose from the residual radioactivity is within the dose criteria of the LTR. It should be specified that the dose from the building structures, and systems and components should be added to any residual radioactivity remaining in the soil and/or groundwater so that the total dose does not exceed the dose criteria of the LTR.

The first paragraph on page VI-8 states that for offsite use scenarios, the dose criteria is still 25 mrem/y. This seems to contradict the guidance in the December 27, 2002 NRC Memorandum, "Update on Case-Specific Licensing Decisions on Controlled Release of Concrete from Licensed Facilities", that volumetrically contaminated material should meet the criteria of a few millirem/y.

December 21, 2005

Chief, Rules Review and Directives Branch  
U.S. Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, DC 20555-0001

Re: Consolidated NMSS Decommissioning Guidance, Updates to Implement the License  
Termination Rule Analysis

To Whom It May Concern:

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) is a national non-profit organization representing the managers of solid waste, hazardous waste, remediation, and underground storage tank programs of the State and Territories. The ASTSWMO Radiation Focus Group has reviewed the revisions to NUREG1757, entitled "Consolidated NMSS Decommissioning Guidance, Updates to Implement the License Termination Rule Analysis," and has a few general comments for your consideration.

On its broadest interpretation, the revisions to NUREG 1757 provide mechanisms for site cleanups to achieve less than unrestricted release. Although we realize that environmental cleanups in general have allowed increasing use of restricted use cleanups, we would caution the Commission to continue to clearly state that the preferred course of action is to achieve cleanup to unrestricted use levels. Lesser cleanup, while allowable in certain situations, should continue to be an option that requires additional justification and scrutiny.

We recognize that the main purpose of this document is to strengthen this scrutiny, and to provide information regarding the types of controls required on restricted use sites to ensure that they remain protective of human health and the environment. In that regard, we do support the use of a Long Term License as a strong institutional control. It should be noted that States continue to improve the effectiveness of institutional controls at the State level, including the development of environmental covenants that are enforceable and run with the land in perpetuity. It is possible for these covenants to also provide NRC or other agencies with enforcement authority.

In a related matter, restricted use releases rely on the concept of future land use, with the cleanup being tailored to be protective of some estimate of that land use. The Focus Group recognizes that for sites with long-lived isotopes, there is no reasonable means to estimate land use thousands of years into the future. While we can support the 100-year time frame as a way to address this uncertainty, the Commission should ensure that adequate mechanisms exist to revisit and update these assumptions on a regular basis.

Coming full circle on this issue, the use of foreseeable land use must be accompanied by the inclusion of appropriate institutional land use controls to maintain the underlying land use

assumption. The entire concept of a use-based cleanup results in the maintenance of this land use becoming a restriction on the cleanup. Conversely, the cleanup cannot be unrestricted if it is conditional on a land use to be protective. The document must be very clear on that concept. The NRC license could be one of these institutional controls (along with others) that could provide this protection as long as it is needed.

The section on engineered barriers warrants several comments. First, a concept is expressed in the document of unrestricted release on a site with an engineered barrier. This seems conceptually inaccurate. The presence of a barrier, which requires monitoring, inspection, and maintenance, as well as restrictions that ensure the protection and continued functionality of the barrier, precludes unrestricted use. Second, the concept of a barrier being passive and not requiring maintenance is also not accurate. Experience in the UMTRA program, which is widely referenced in the document as having robust barriers that do not require maintenance, is that inspection and maintenance of these barriers is required. Lastly, we believe that references to barrier technology in the document are outdated. Both the Department of Energy and the Environmental Protection Agency have ongoing studies of barrier performance. This has led to new recommendations in barrier design, including the emerging use of evapotranspiration barriers in place of multiple layers. The document should reference the appropriate state of the art in this technology.

The section on intentional mixing is likely to be one of the more controversial aspects of the document. Although most federal and state agencies have historically opposed the dilution of contaminated media as a means to achieve cleanup, we believe that there is a place for the concept of intentional mixing. Specifically, the Focus Group supports the intentional mixing of contaminated materials to meet waste acceptance criteria. This appears to be a practical means of achieving site cleanups in a cost effective manner. Two important aspects of this concept are that the footprint of the contaminated area cannot be expanded (clean material cannot be used to dilute contaminated material), and that the objective is to excavate all contamination and achieve unrestricted release. However, we are much less comfortable with the concept of intentional mixing designed to leave contamination in place, and fully oppose the use of clean materials to dilute contamination.

Thank you for your consideration in this matter. If you should have any questions, need any additional information, or wish to discuss this matter further, please contact me at 303-692-3387.

Respectfully,

Jeff Deckler, Chair  
ASTSWMO Radiation Focus Group

cc: Jim Woolford, EPA  
Dan Schutlheisz, EPA  
Radiation Focus Group  
Federal Facilities Subcommittee

From: Richard Hill <phill@venus.net>  
 To: <nrcprep@nrc.gov>  
 Date: Fri, Dec 30, 2005 11:48 AM  
 Subject: Response from "Comment on NRC Documents"

9/29/05  
 70 FR 56940

(8)

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RULES AND DIRECTIVES  
 BRANCH  
 USNRC

Below is the result of your feedback form. It was submitted by

Richard Hill (phill@venus.net) on Friday, December 30, 2005 at 11:48:12

Document\_Title: NUREG-1757, Supplement 1, draft

Comments: Thank you for the opportunity to comment on this draft guidance document. Being involved since 1999 in the decommissioning of the depleted uranium projectile testing area of the former Jefferson Proving Ground (JPG) in southeastern Indiana, we have a particular interest in guidance regarding restricted use and institutional controls.

Not having the resources to hire experts to examine the document and provide comments the nature of these comments will be relatively general from an informed, affected, concerned layperson's point of view.

It does appear that considerable thought and effort has been put into the development of this guidance; and, we appreciate that.

#### 17.7.2 RESTRICTED USE

Circumstances existing at various "legacy sites" brought about by past uses require special considerations including "restricted use". The development of regulations and guidance such as those proposed here have become necessary to protect public health and the environment.

We believe that the creation of such sites should be avoided up-front. For example, more thought and care should be taken in granting a license when it is obvious that the future remediation of the area will be exceedingly difficult due to conditions existing at that site.

While we approve of the NRC's efforts to deal with such sites already created we would caution the NRC not to allow new and improved regs and guidance to promote creation of more sites that would eventually required restricted use. Many see these restricted use sites as sacrifice zones and should be avoided.

The concept of prevention of restricted use sites leads to our next comment.

#### III ONSITE DISPOSAL OF RADIOACTIVE MATERIALS

We note that a rulemaking effort is planned for FY 2006 "to address the prevention of future legacy sites". Again, this we would support.

Additional financial assurance appears to be the main focus of this prevention strategy. However, we believe that financial assurance should not be the only thing to consider to prevent future legacy sites. As we mention above, a concerted up-front assessment of the probable end-state of the site would also help. It is possible that a licensee could have the resources to ensure adequate financial assurance for many decommissioning aspects, but still end up with a restricted, unusable site.

SISP Review Complete  
 Template = ADM-013

ERIDS = ADM-03  
 Add = D. Schmidt (DWS2)  
 K. Minorac (KLB)

organization: Save the Valley, Inc.

address1: PO Box 813

address2:

city: Madison

state: IN

zip: 47250

country: USA

phone: 812-265-4577

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RULES AND DIRECTIVES  
CONNECTICUT YANKEE ATOMIC POWER COMPANY  
BRANCH  
USNRC

HADDAM NECK PLANT  
362 INJUNCTION ROAD EAST HAMPTON, CT 06424-3099

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RULES AND DIRECTIVES  
BRANCH  
USNRC

Chief, Rules Review and Directives Branch  
U. S. Nuclear Regulatory Commission  
Mail Stop T-6-D59  
Washington, D C 20555-0001

Comments on NUREG-1757, Supplement 1, "Consolidated Nuclear Material  
Safety and Safeguards (NMMS) Decommissioning Guidance: Updates to  
Implement the License Termination Rule Analysis, Draft Report for Comments"  
(70 FR 56,940 – September 29, 2005)

Connecticut Yankee Atomic Power Company (CYAPCO) appreciates the opportunity to provide comments to the U. S. Nuclear Regulatory Commission (NRC) in response to the subject notice. NUREG-1757, Draft Supplement 1 proposes changes that should provide some regulatory relief for future decommissioning work. Some of the important changes include:

1. Allow reasonable scenarios (versus the worst case scenarios that have been generally used to date),
2. Allowing intentional mixing of contaminated soil, and
3. Allow future land use assumptions to be based on a 100 year versus a 1000 year horizon.

CYAPCO is supportive of the above changes, as these changes should make dose modeling and remediation more reasonable in the future while continuing to protect the safety of the public. In addition, the NRC recommends the use of the Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP, 2004) as part of decommissioning planning. The MARLAP describes a methodology for planning, conducting, evaluating, and documenting environmental radiation surveys conducted to demonstrate compliance with cleanup criteria. The NRC is also recommending that the MARLAP should be used in concert with the Multi-agency Radiation Survey and Site Investigation Manual (MARSSIM, 2000) as part of the Data Quality Objectives process in performing final status and

STSP Review Complete  
Template = ADM-013

E-RIDS = ADM-03  
Cell = J. Schmidt (DWS2)  
K. Pymore (KLB)

potentially other surveys as part of the remediation and the Final Status Survey process. However, it is not clear that the NRC will require the existing plant sites which are undergoing decommissioning to follow the above recommendation (i.e., use of the MARLAP). CYAPCO recommends some flexibility in the required application of the MARLAP for plant sites which are currently in the advanced stage of decommissioning and cleanup activities.

Should you have any questions regarding our comments, please do not hesitate to contact me at (860) 267-3938.

Sincerely,

Gerard P. van Noordennen

Gerard P. van Noordennen  
Regulatory Affairs Manager

12-22-05

Date

Raymond C. Vaughan  
Coalition on West Valley Nuclear Wastes  
135 East Main Street  
Hamburg, NY 14075

1. I request a time extension for comments on NUREG-1757, Supplement 1. The following incomplete comments are submitted at this time, but additional time should be provided so that I and others may submit more complete comments.

2. The Glossary, p. xi, defines *Robust engineered barrier* as a “man-made structure that is designed to mitigate the effect of natural processes or human uses that may initiate or accelerate release of residual radioactivity through environmental pathways. The structure is designed so that the radiological criteria for license termination (10 CFR 20, Subpart E) can be met. Robust engineered barriers are designed to be more substantial, reliable, and sustainable for the time period needed without reliance on active ongoing maintenance.” The last sentence of this definition is important and appropriate; it specifies that such a barrier is expected to be sustained “without reliance on active ongoing maintenance.”

3. Page II-2 refers to the possibility of a “long-term control (LTC) license (a new type of possession-only license that functions as a legally enforceable institutional control)” and also refers to “restricted use sites that cannot arrange legally enforceable institutional controls...” There are two problems or potential problems with these concepts. First, depending on how it is structured and issued, an LTC license may not be legal. An LTC license should not provide a means for avoiding or evading otherwise applicable license requirements that must be met, for example, for near-surface disposal of radioactive waste. Second, the concept of “restricted use sites that cannot arrange legally enforceable institutional controls...” appears faulty. The option of restricted use becomes available if and only if certain requirements are met, as set forth in the LTR. “Restricted use” is not a *given* or guaranteed option for decommissioning under the LTR, and NRC guidance should not offer suggestions about ways to proceed with restricted-use decommissioning at any site that cannot show compliance with the regulatory requirements for restricted use.

4. On page II-5, the list of information needed to support the use of alternate criteria (“If the licensee is requesting license termination using the alternate criteria provisions of 10 CFR 20.1404...” ) should also include the information recited in the *prior* paragraph. In particular, any license termination using the alternate criteria provisions of 10 CFR 20.1404 will need to show compliance with the “cap” requirements of 10 CFR 20.1403(e). This is a point that I have previously raised and resolved with NRC. Simply stated, the use of “alternate criteria” is not a complete alternative to 10 CFR 20.1403; it provides only for dose criteria that can serve as an alternative to the 25 mrem/yr criterion given in sections 20.1402, 20.1403(b), and 20.1403(d)(1)(i)(A). Other requirements of 20.1403 remain applicable, assuming restricted use.

5. The proposed (highlighted) insertion of the phrase “in 10 CFR 20.1403” on page II-5 may

increase the confusion about whether the use of "alternate criteria" and 10 CFR 20.1403 are mutually exclusive. They are *not* mutually exclusive, and the phrase "in 10 CFR 20.1403" should not be inserted on page II-5 without the type of clarification outlined here in my paragraphs 4 and 5. Granted, the necessary type of clarification does appear on page IV-40; its appearance there may be sufficient. ("An alternative release proposal in accordance with 10 CFR 20.1404 may allow a dose of up to 1.0 mSv/y (100 mrem/y) with restrictions in place. However, if the restrictions fail, the dose may not exceed the values in 10 CFR 20.1403(e). Furthermore, all of the other provisions of 10 CFR 20.1403 must be met.")

6. On page II-6 ff., the LTC license discussion ("If a licensee cannot establish acceptable institutional controls or independent third party arrangements, the licensee may propose one of the two new options involving NRC: an NRC Long-Term Control (LTC) license or an NRC Legal Agreement and Restrictive Covenant (LA/RC)....") encounters the same problems discussed above in my paragraph 3. The same problem occurs again on pages II-13, II-14, and subsequent pages where the LTC license is offered as an option. The statement of page II-56 ("a licensee proposing to use the LTC license needs to comply with all the criteria of 10 CFR 20.1403, even though the license will not be terminated.") provides an important safeguard but does not address other licensing requirements that may need to be met.

7. Figure 17.1 (page II-10) and the discussion on pages II-7 through II-9 are wrong; they mischaracterize the role of 10 CFR 20.1403(e). Section 20.1403(e) is a *requirement* that must be met in order for a site to be eligible for restricted release (with or without the use of alternate criteria). In Figure 17.1 and in the text on page II-7, 10 CFR 20.1403(e) should be shown as an eligibility criterion in step 2. Alternatively, if NRC believes that 10 CFR 20.1403(e) is not an eligibility requirement in the strictest sense, given the paragraph structure of 1403(a) and (e), then 10 CFR 20.1403(e) is an absolute regulatory mandate to reduce residual radioactivity such that the "cap" would be met if institutional controls were no longer in effect at any site eligible for restricted release. In any case, compliance with 10 CFR 20.1403(e) is mandatory for restricted release. Figure 17.1 should not indicate that compliance with 10 CFR 20.1404 is available as an alternative to compliance with 10 CFR 20.1403(e).

8. Compliance with 10 CFR 20.1403(e) is improperly omitted from the long discussion of Restricted Use, Eligibility Demonstration, and Acceptance Criteria on page II-11 ff. The only apparent references (pages II-12 and II-13) are too vague and make the 10 CFR 20.1403(e) dose "cap" sound optional, or subsidiary to other requirements, which is not the case. This lack must be corrected in accordance with the LTR and in accordance with the discussion above in paragraphs 4-7. Compliance with 10 CFR 20.1403(e) is mandatory for restricted release, and its applicability needs to be described clearly in this guidance document. The overview of Alternate Criteria in Appendix M (pages II-49 to II-50) should also clearly indicate the applicability of 10 CFR 20.1403(e).

9. On page II-37, it is unreasonable and unprotective for NRC to add the following proposed language: "The licensee is not required to reach consensus with the affected parties on the various aspects of the proposed institutional controls." At the very least, the phrase "not required to reach consensus" needs to be clarified, or, preferably, the regulatory language ("shall seek advice") will be allowed to prevail, with some presumption that the advice will not only be

sought but heeded to some extent. Similarly, on page II-39, it is unreasonable and unprotective for NRC to strike out the following language: "As required by 10 CFR 20.1403(d)(1), the advice to be sought is whether the institutional controls proposed by the licensee will have the following qualities:

- provide reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 0.25 mSv/y (25 mrem/y);
- be enforceable;
- not impose undue burden on the local community or other affected parties; and
- be backed by sufficient financial assurance for any necessary control and maintenance of the site by an independent third party." Public input on institutional controls is needed.

10. The concept of Partial Restricted Release (page II-57 ff.) needs a more comprehensive review and implementation process than is provided by this comment period on a draft guidance document.

11. Finality of Decommissioning Decisions (page II-61 ff.) needs a more comprehensive review and implementation process than is provided by this comment period on a draft guidance document.

12. On page II-74, where "NRC proposes that the following [three] assumptions be used when applying engineered barriers to achieve decommissioning at a site," NRC should clearly state whether *active maintenance* of engineered barriers falls within the definition of institutional controls.

13. Procedures for onsite disposal of radioactive waste, page III-1 ff., need a more comprehensive review and implementation process than is provided by this comment period on a draft guidance document. Procedures for onsite disposal should not provide a means for avoiding or evading otherwise applicable license requirements that must be met, for example, for near-surface disposal of radioactive waste.

# New York State Department of Environmental Conservation

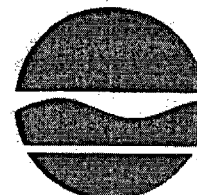
## Division of Solid and Hazardous Materials

Bureau of Hazardous Waste and Radiation Management, Radiation Section

625 Broadway, Albany, New York 12233-7255

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Denise M. Sheehan  
Commissioner

December 30, 2005

### Via E-Mail

Mr. Duane W. Schmidt  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Mr. Schmidt:

RE: NUREG 1757, Supplement 1, Draft Report for Comment  
Decommissioning Guidance Updates to Implement the License Termination Rule  
Analysis (STP-05-074)

The New York State Department of Environmental Conservation has reviewed the above-referenced draft report, and offers the following comments for your consideration:

#### 1. Long-Term Control License

We concur with the concept of a long-term control license (LTC license), described on page II-6 and elsewhere in this document. Properly implemented, a LTC license can provide greater assurance that the necessary land use and other controls will remain effective at sites that are released for restricted use. In addition, we agree that the LTC license is preferred over the legal agreement and restrictive covenant option.

#### 2. NRC Legal Agreement and Restrictive Covenant (LA/RC)

a. On Page II-7, it is stated, "The LA/RC option provides flexibility for a formerly licensed site where the current owner does not want to become a licensee or for current licensees where the owner may want license termination." This gives the impression that it is merely a matter of the licensee's preference. However, on page II-8 and elsewhere, certain conditions are described that must be met for the LA/RC option to be used. We suggest revising the statement on page II-7, to note that certain conditions apply.

b. The conditions necessary for using LA/RC include a demonstration "that the LA/RC would be a significant benefit to the licensee/owner and affected parties." Given that the LA/RC option would not entail the fees associated with the LTC license option, demonstrating that this option is a benefit to the licensee is hardly necessary. Rather, the licensee should demonstrate

that the LA/RC option is justified and provides the same level of protection for the public and the environment as the LTC license option. Therefore, we suggest revising the wording of the bullet on pages II-8 and 9, and elsewhere, to read (changed language underlined):

LA/RC option may be used if:

- Current licensee or formerly licensed site owner requests use of the LA/RC rather than the LTC license, demonstrates that the LA/RC option would be as effective as the LTC license option and legally enforceable by NRC in the jurisdiction where the site is located, and demonstrates that the LTC licensee option would impose an unreasonable economic, technological, or safety burden on the person or the public.

### 3. Onsite Disposal of Radioactive Materials under 10 CFR 20.2002

In new Section 15.12 (page III-4), three onsite disposal options are described. Under Option 2, the NRC would approve the on-site disposal of radioactive waste as long as the projected dose was less than 100 mrem/yr, and adequate financial assurance is provided if the projected dose exceeds 25 mrem/yr. In addition, the on-site disposal area is to be revisited at decommissioning: "Onsite disposals or burials may have to be remediated for license termination." This appears to go beyond the intent of section 20.2002, and we recommend deleting it. In New York State, a proposal for disposal under Option 2 would not meet the requirements of Section 380-3.5 of 6 NYCRR 380 (the State regulations comparable to 10 CFR 20.2002.). If this option is not deleted, the NUREG should be expanded to set clear and strict conditions under which the NRC would consider approving onsite burial in those cases where it is known, in advance, that the burial site will require remediation in the future. The NRC should explain the circumstances that would justify deliberately creating such a site.

### 4. Land Use

On Page IV-52, in Section 1.3.3.3, *Guidance on Specific Issues, Land Use*, there are two somewhat different time periods referenced. In the second paragraph of this section it is stated, "Any land uses that similar property in the region currently has, or may have in the near future (e.g., less than 100 years), should be characterized as reasonably foreseeable." Later, this sentence appears in the final paragraph on that page, "The societal uses of the site in the future should be based on advice from local land planners and other stakeholders on what possible land uses are likely within a time period of the next few decades to around a hundred years." Neither provides clear direction on the time period that should be evaluated. If there are conditions under which it would be adequate to evaluate less than 100 years (for example, short half-life of radionuclides), it would be helpful to explain those. Otherwise, we recommend revising both references to require consideration of a 100-year period.

## 5. Use of Intentional Mixing of Contaminated Soil

a. In the introduction to Section 12.13 (Page V-9), and elsewhere, the document refers to the use of intentional mixing for limited onsite disposal at operating facilities approved under 10 CFR 20.2002. In New York State, such disposals are governed by Section 380-3.5 of 6 NYCRR 380. It is unlikely that a proposal to use intentional mixing for on-site disposal could meet the requirements of Part 380.

b. In the second paragraph of Section 15.13.2, *Review Procedures*, (Page V-10), it is stated, "Intentional mixing should not be proposed as a sole remedy, for example to achieve the LTR release criteria using minimal funds, unless this is the only solution to achieving the license termination dose criteria." (underlining added). We are unaware of a situation in which the latter would be true. If intentional mixing is feasible, it must be feasible to move the contaminated soil. If the contaminated soil can be moved to be mixed, it can also be moved to be placed into a container for shipment to a radioactive waste disposal facility. We recommend deleting the phrase, "unless this is the only solution to achieving the license termination dose criteria."

c. On page V-14, the Approval Conditions for use of intentional mixing are listed. Condition 1 calls for the area containing the mixed contaminated soil to be equal to or smaller than the footprint of the zones of contamination before decommissioning begins. We recommend that this be changed, to limit the overall volume of contaminated soil, not just the area extent. Otherwise, licensees can propose creating mounds of mixed soil, as long as the areal extent remains the same. This could limit the future uses on a site, or lead to a subsequent increase in the areal extent of the contamination, when future occupants spread the pile for their own purposes (this would not necessarily result in further dilution, depending on the height of the pile). A more effective criterion would be to that the total volume of contaminated soil should not be increased by mixing. This would prevent the creation of mounds of contaminated soil on the site, and would place a reasonable limit on the use of mixing solely to avoid disposal.

d. We do not support the statement in condition 2, "Staff will consider rare cases where the only viable alternative to achieving the dose levels of the LTR appears to be using clean soil from outside the footprint of the area containing contaminated soil." We question whether this would ever be the case. If intentional mixing is feasible, then it must be feasible to move the contaminated soil. If the contaminated soil can be moved to be mixed, it can also be moved to be placed into a container for shipment to a radioactive waste disposal facility. We recommend deleting that sentence, on page V-14 and elsewhere. If not, at least the words "appears to be" should be changed to "has been clearly demonstrated to be."

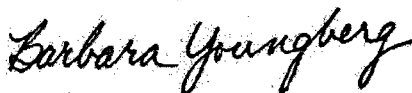
e. In the fifth paragraph on Page V-14, it is stated,

The staff will consider the inclusion of uncontaminated soil that comes from below the contaminated zones within the footprint as long as it is consistent with the overall approach described for achieving license termination, and considers the impacts associated with an increase depth (e.g. [e]ffect on groundwater).

Clean soil under the contaminated zone should be used as sparingly as clean soil on the surface. The goal should be to avoid contaminating clean materials, wherever they are present. We recommend deleting this option, and instead limiting the volume of mixed soil, as explained in our comment 5.c.

Thank you for the opportunity to review this document. If you have any questions, please contact me (518-402-8579).

Sincerely,



Barbara Youngberg  
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January 8, 2006

BY EMAIL

Michael T. Lesar  
Chief, Rules Review and Directives Branch  
US Nuclear regulatory Commission

SUBJECT: COMMENTS ON DRAFT NUREG-1757 CONSOLIDATED NMSS  
DECOMMISSIONING GUIDANCE, SUPPLEMENT 1 ( 70 FR 56940)

I appreciate the opportunity to comment on the above document. The document reflects a substantial staff effort that will be of assistance to persons involved in the decommissioning process. I offer the following comments:

1) As a general comment, the staff should appreciate that guidance associated with restrictive releases should be considered a "work in progress" in light of the fact that no licensee has completed the regulatory process and has had its license terminated under the restrictive release provisions of 10 CFR Part 20, Subpart E (LTR). In the past, NRC has frequently issued guidance after it has accumulated experience in an area and the guidance reflected that experience. That experience is lacking in the Part 20 restrictive release area. That is not to say that guidance should not be issued and experiences from similar areas, e.g. Part 40, be considered. The staff internally, licensees, States, and other stakeholders need to understand the staff's expectations in this area. However, the staff needs to be mindful that there maybe unintended consequences in issuing guidance that has not been implemented and tested. The staff needs to maintain the flexibility to depart from the guidance based on commons sense and good judgment. Such flexibility must be exercised with appropriate management controls so that departures are understood, documented, and reasonably controlled. It needs to be emphasized that the staff guidance is only one way to meet the regulations and that given the performance based nature of the LTR there are likely other ways to achieve compliance with the rule. Thus, the staff should exercise caution in issuing this guidance to ensure that the guidance does not become de facto prescriptive standards. The NUREG should be modified to clearly state this philosophy. For example, the Introduction to the NUREG should contain the last paragraph of section 1.1 of NUREG 1757, Volume 1, Rev 1.

2) Page II-40. SSAB. **Comment: Procedures for SSAB should be considerations.**

The LTR does not require the use of a SSAB. While advisory boards are helpful, this is an area that needs flexibility to address different communities and circumstances. Thus, I would change "Licensees should use the following guidance in establishing and convening a SSAB:" to "Licensees should consider the following guidance in establishing and convening a SSAB:"

**3)Page II-37, Partial Site Release. Comment: Prohibition on sale of unrestricted use property should be removed.**

The preferred approach in this section in my view attempts to rewrite the rule to require more than what the rule requires. The LTR requires sufficient financial assurance to provide long term protection to the public health and safety, i.e., sufficient financial assurance to enable a third party to assume and carry out responsibilities for any necessary control and maintenance of the site. However, the staff proposes to prohibit a licensee from releasing property that is suitable for unrestricted release because the unrestricted portion of the property which is not needed to maintain radiological protection may help ensure sustainability of owner/licensee controls where the restricted portion may not have value. Putting to one side the question whether the staff has performed an economic analysis that supports the staff's position, the staff position appears to be inconsistent with the requirements of 10 CFR 20.1403 that requires the staff to have reasonable assurance that the financial assurances provided by the licensee are adequate. The adequacy of the financial assurance is a key issue in the decision to allow a restrictive release. It is either adequate or not. If it is adequate, unless the continued ownership of the unrestricted portion of the property was factored into the financial assurance decision, it is irrelevant that "the unrestrictive use portion of the site could have resale value that balances the lack of resale value or even perception of liability associated with the restricted use portion." Under the staff's logic, maybe the next step is for the staff to require licensees that have potential restrictive use property without unrestrictive release portions to purchase valuable property to obtain the benefits that the staff is seeking by prohibiting the sale of adjacent releasable property.

The staff recognizes that there are pros and cons to its preferred approach. This is an example where in my view it is premature to issue definitive guidance given the lack of experience in restrictive releases. Clearly it is one approach that under some circumstances may be helpful but it should not be the expected outcome. I would modify the section to have the staff's preferred approach restated as an option that a licensee might consider but not to have it as a preference that by implication suggest that it would deny a license termination that does not follow the guidance. This will preserve flexibility.

**4) page V-14. Intentional Mixing of Contaminated Soil. Comment: Remove the term "rare" in addressing mixing with clean soil.**

In my view, the LTR does not prohibit mixing clean soil with contaminated soil to achieve the dose limits of the regulation. On the other hand expanding the footprint of contamination should not be the first choice for remediation. However, if removing contamination from a site and shipping it to a LLW site for disposal is not feasible such that the site will not be remediated, then mixing should be considered. As Chairman Diaz noted in his vote sheet on SECY 04-0035 that there may be sites where the licensee proposes to use clean soil outside the contaminated area footprint to meet the License Termination Rule (LTR) release criteria where that approach is the most practical and cost effective way to meet the LTR release criteria. Thus, I can accept the limitation that it should only be done "where the only viable alternative to achieving the dose levels of the LTR is to use clean soil from outside the footprint of the area containing the contamination." However, I recommend that the undefined term "rare" be deleted. There are not many sites where this will be an issue. What is rare to some may be considered frequent to others. The issue is not the number of times mixing might be used. The issue is, is whether mixing appears to be the only viable approach to achieve an adequate remediation. Safety not quotas or frequency should justify its use.

**Comment: Soil from outside the site should be allowed to be mixed.**

Notwithstanding that mixing to reduce the concentration with clean soil is a limited option to be used where it appears it is the only viable option (which is more restrictive than the Chairman's approach of using it where it is the most practical and cost effective way to meet the rule) the proposed guidance at V-14 does not allow for using mixing if clean soil came from outside the site boundary. What the staff is saying is that trucking clean dirt from across the street is unacceptable for mixing but shipping contaminated dirt thousand of miles is acceptable with the increased risk of injury and death. What happened to the issue of "net public or environmental harm" discussed in 10 CFR 20.1403(a)? It seems to me that if using clean dirt from outside the site appears to be the only viable approach, then why should it not be permitted. This should be changed. I appreciate that Commissioner Merrifield had reservations with mixing. His vote sheet for SECY 04-0035 provided that

when it comes to intentionally mixing clean soil (particularly if the clean soil comes from off-site) with contaminated soil to achieve a waste acceptance criteria, I have serious reservations; and the Commission should be directly consulted if such a proposal is submitted by a licensee. This consultation should occur after the staff has conducted a technical review and is prepared to make a recommendation on the application. Again, this action is consistent with the staff's proposed option 3.

His views on using soil from offsite sources appear to be addressed at achieving waste acceptance criteria for offsite disposal and not for on site remediation. In any event, the SRM did not reflect his views. Again the test should be what is needed to achieve an appropriate remediation that meets the LTR. If the staff is uncomfortable with using soil from offsite sources even if it is the solution to a difficult remediation case, then the answer is not to outright prohibit it, it is to seek Commission guidance on a particular case. Of course that was what the staff proposed initially for the mixing issue in SECY 04-0035. The Commission responded in the May 11, 2004 SRM and told the staff that Commission consultation was not needed and the staff should make the decision. Accordingly, the limitation should be removed. In such a case, the test would be whether mixing appears to be the only viable approach to a successful remediation in accordance with the LTR.

**Comment: Mixing in appropriate circumstances should be allowed to reduce classification of waste for disposal sites.**

From a health and safety perspective, the appropriateness of the disposal of waste at a low-level waste site is not the pedigree of the waste but the characteristics, etc of the waste that arrives at the disposal site. Classification addresses what is shipped to a low-level waste site and what may be buried at the site. Why should it make a difference from a safety perspective whether the classification of material was reduced for technical and operational reasons which is permitted or for other reasons such as mixing was used as it was the only apparent way to have a viable disposal. This is an important public policy issue considering the limited burial capacity for B and C waste. From a practical view, it may be difficult to sufficiently mix higher classified material with cleaner material to reduce it to lower classified material. But if you can do it, and the resulting material is consistent with a performance analysis which demonstrated that the performance objectives of Part 61 are met, it seems that the material should be allowed to be disposed of at the new classification level. Decisions in this area should involve the regulators of the involved disposal site. This may well be an area consistent with Commissioner's Merrifield's view that the staff should seek Commission consultation on since it is not clear that this issue was not specifically raised to the Commission in SECY 0-0035. I

recommend that the NUREG be modified to allow it as an option noting the need for Commission consultation.

If you have any questions on these comments, please contact me at 301 299 3607.

Respectively submitted,

Jim Lieberman